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New or Noteworthy Plant Collections from Myanmar (1) *Hydrobryum japonicum*, *Balanophora subcupularis*, *Rhopalocnemis phalloides* and *Sonerila laeta*

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In the course of floristic research of Kachin State, northern Myanmar, *Hydrobryum japonicum* Imamura (Podostemaceae), *Balanophora subcupularis* Tam, *Rhopalocnemis phalloides* Jungh. (Balanophoraceae) and *Sonerila laeta* Stapf (Melastomataceae) were collected. These species are new to the flora of Myanmar. These materials may suggest that the flora of uppermost regions of Myanmar is closely related to Sino-Japanese or Indo-Chinese floristic region rather than Indian one.

Key words: *Balanophora*, *Hydrobryum*, Myanmar, *Rhopalocnemis*, *Sonerila*.

In the course of ongoing inventory work for the floristic analysis of Myanmar (Tanaka 2005), two expeditions to Hukaung Valley Tiger Reserve, Kachin State, the northernmost State of the country were carried out in September and December 2005.

During the expeditions *Hydrobryum japonicum* Imamura (Podostemaceae), *Balanophora subcupularis* Tam, *Rhopalocnemis phalloides* Jungh. (Balanophoraceae), and *Sonerila laeta* Stapf (Melastomataceae) were collected. All these species are new to Myanmar. The importance and characteristics of these collections are noted below. The top set of the voucher specimens was retained in Tanaing Office, Forest Department, Ministry of Forestry, Union of Myanmar. The duplicates are deposited in the herbaria of Makino Botanical Garden (MBK) and the University of Tokyo (TI). Identification of the host of *Balanophora subcupuralis* was based on morphology and cpDNA sequence.

Myanmar (Burma) stretches from the Southeastern Himalayas to the Andaman Sea, and encompasses great topographical and climatic extremes that have given rise to a complexity of habitats and ecosystems.

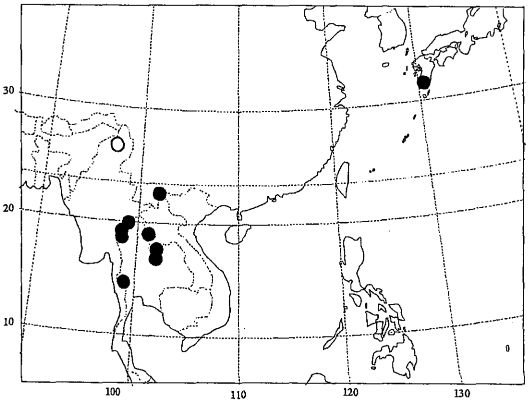

Fig. 1. Distribution of *Hydrobryum japonicum* (emended from Kato 2006, fig 1). New locality in Myanmar is indicated with open circle.

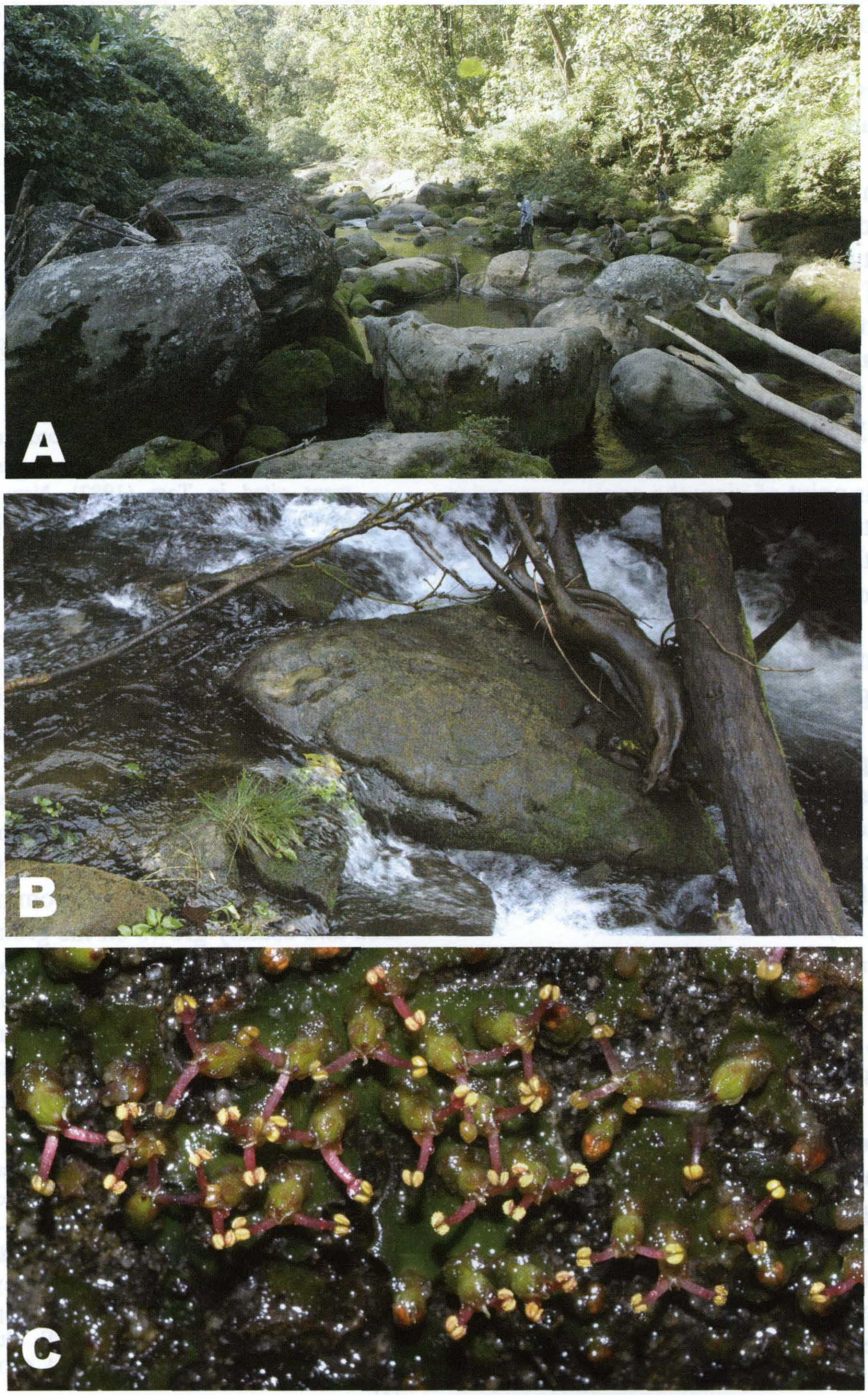

Fig. 2. *Hydrobryum japonicum*. A. Rheophytic habitat in Shinbweyan. B. A large rock with *H. japonicum* (yellowish colony in the central part). C. Plants enlarged.

Accordingly, Myanmar constitutes a significant component of the Indo-Myanmar Hotspot in terms of both land area and biodiversity (van Dijk et al. 2004). On the other hand, Kingdon-Ward (1916) pointed out the existence of the Myanmar-China (Yunnan) floristic region, Ohba (1975) also supposed this relationship based on his taxonomic study on *Sedum* of Myanmar.

All of the four species reported here have their main distribution range east of Myanmar. Accordingly they suggest that the flora of the uppermost regions of Myanmar is closely related to Sino-Japanese or Indo-Chinese elements rather than an Indian one. From this point of view the continuous series of this study in this area will be important to reveal the floristic relationship between Myanmar and its neighboring regions.

Hydrobryum japonicum Imamura in Bot. Mag. Tokyo **42**: 376 (1928). [Figs. 1, 2]

This species was originally described from Japan but is mainly distributed in Thailand and adjacent areas (Kato 2006). This is the first record from Myanmar and is the western limit of the distribution of this species (Fig. 1).

Voucher specimens: MYANMAR. Kachin State; Tawa Hka (River), 3 miles from Shinbweyan toward Pansaung. 26°43′33″N, 96°11′55″E, alt. 200–210 m, on rock by stream, 6 December 2006, J. Murata & al. 040671, 041232 (MBK, TI).

Balanophora subcupularis Tam in Fl. Fujianica **1**: 602 (1982). [Figs. 2, 4]

This species was described recently (Tam 1982) in comparison to *B. hainantensis* Masam. (= *B. abbreviata* Blume). It appears to be similar to *B. abbreviata*, which is also distributed in Myanmar, but distinct from the latter in the reddish color of the aerial part (white in *B. abbreviata*) and the number of locules in the synandrium (usually four vs. 16–20 in *B. abbreviata*). Actually, it is very close to *B. fungosa* J. R. Forst. & G. Forst. subsp. *fungosa* distributed in the coastal areas and on the islands in the Pacific region (Murata 1988) and distinguished only in the smaller size of the inflorescence (especially of the male flower) than *B. fungosa*. This is the first record from Myanmar and is the western limit of the distribution of this species (Fig. 2). This species is common in this area and usually grows on the ground. In extreme cases, however, the rhizome attached to the aerial roots of *Byttneria pilosa* Roxb. (Sterculiaceae) extends up to 3 m high above the ground and many inflorescences were covered by the thick climbing stem of the host.

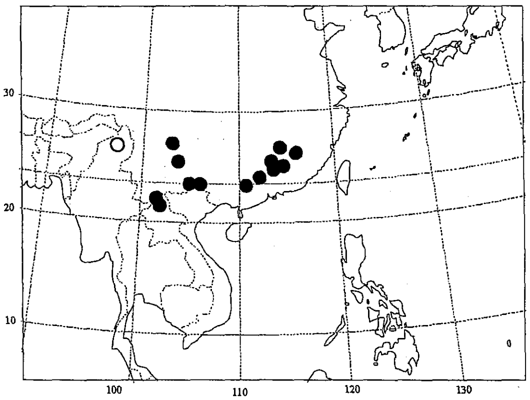

Fig. 3. Distribution of *Balanophora subcupuralis*. Sold circles are based on the herbarium specimens cited in Tam (1982). New locality in Myanmar is indicated with open circle.

Voucher specimen: MYANMAR. Kachin State; Tawa Hka (River), 3 miles from Shinbweyan toward Pansaung, 26°43’25”–33”N, 96°11’50”–55”E, alt. 200–210 m, 6 December 2006, J. Murata & al. 040882 (MBK, TI); 8–9 miles from Shinbweyan toward Pansaung, near the border of Sagaing Division, 26°46’47”–47’15”N, 96°12’26”–34”E, alt. 900–1100 m, 7 December 2005, J. Murata & al. 040913 (MBK, TI).

Rhopalocnemis phalloides Jungh. in Nov. Act. Ac. Caes. Leop.-Cur. 18, Suppl.

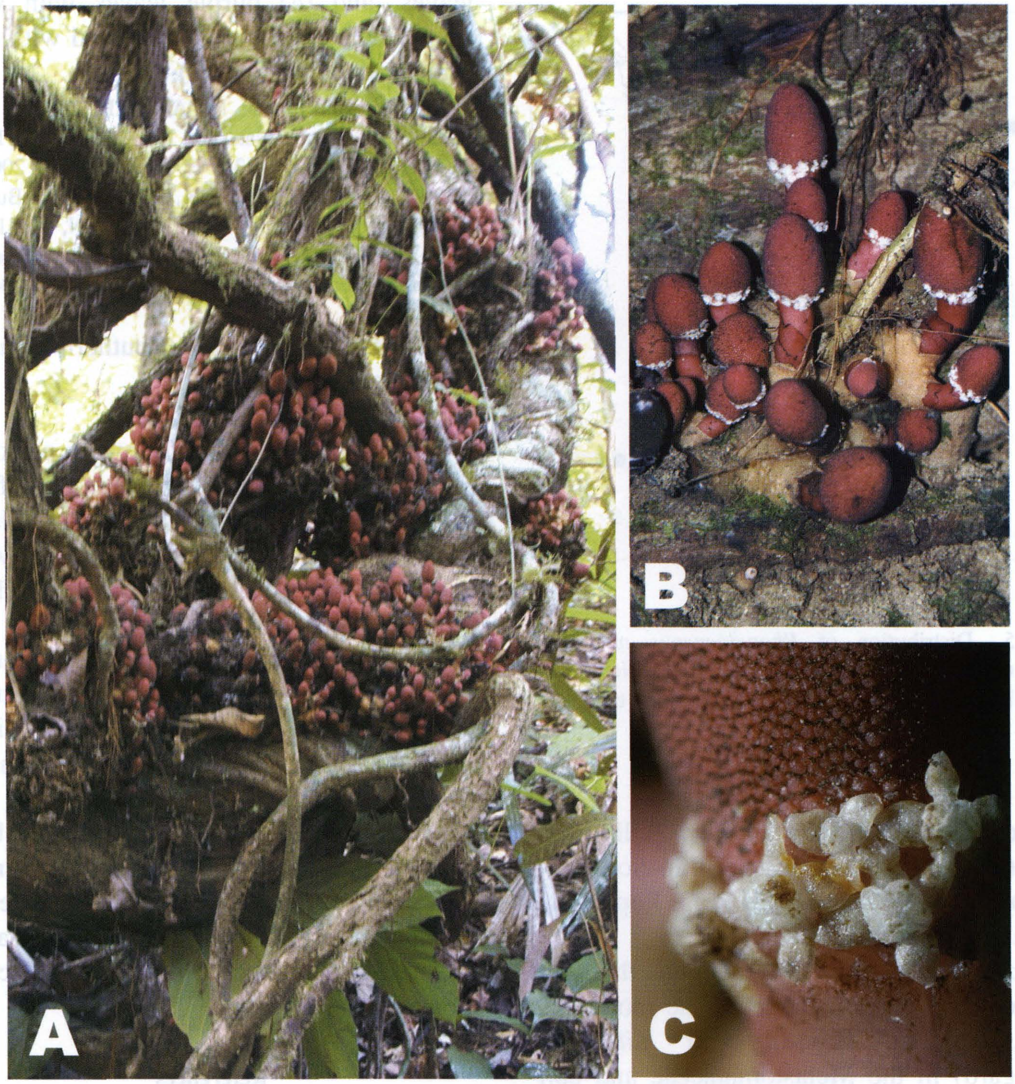

Fig. 4. *Balanophora subcupuralis*. A, B. Habit on the trunk of *Byttneria pilosa* Roxb. (Sterculiaceae) up to 3 m high above the ground. C. Male flowers enlarged, showing tetra- or trimerous petals and anther locules.

1: 215 (1841). [Figs. 5, 6]

This species is thus far known widely from Eastern Nepal to Southeast Asia as shown in Fig. 3. However, there is a wide gap of distribution extending from Borneo, north-westward to Malaysia, Laos, Thailand and Myanmar. The materials collected in this study fill the northern part of the gap.

Voucher specimen: MYANMAR. Kachin State; 8–9 miles from Shinbweyan toward Pansaung, near the border of Sagaing Division, 26°46’47”–47’15”N, 96°12’26”–34” E, alt. 900–1100 m, 7 December 2005, J. Murata & al. 040914 (MBK, TI).

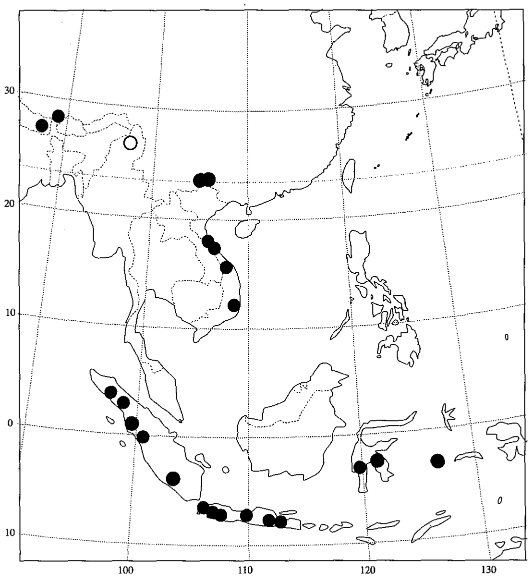

Fig. 5. Distribution of *Rhopalocnemis phalloides* (emended from Hansen 1976, fig. 6). New locality in Myanmar is indicated with open circle.

Sonerila laeta Stapf in Kew Bull. **1906**: 73 (1906); Guillanum in Bull. Soc. Bot. France **60**: 404 (1913); Fl. Reip. Popul. Sin. **53**(1): 261 (1984). [Fig. 7]

Sonerila is the only genus that has trimerous flowers (except for the monotypic *Stussenia* C. Hansen and *Lithobium* Bongard) in the Melastomataceae and consists of about 100–175 species in tropical Asia (Cellinese 1997). *Sonerila laeta* was described from cultivated materials germinated from the seeds collected by E. H. Wilson in 1900 from China and details of its original locality in China is unknown (Stapf 1906). Thus far this species has been known only from Southern Yunnan Province, China. This is the first record of this species from Myanmar.

Leaves of this species show remarkable color variation. Four types of leaves were observed in the field; (1) green leaves (2) green leaves with white spots, (3) purple leaves, and (4) purple leaves with white spots. These four types are found within the same population (Fig. 7).

Voucher specimens: MYANMAR. Kachin State: northeast of Shinbweyan, alt. 170–200 m, 26°41’51”–43’12”N, 96°12’27”–13’6”E, 9 December 2005, J. Murata & al. 040937 (MBK, TI); Mt. Jun Buu, 25 miles south of Tanaing, 26°01’13”–17”N, 96°41’27”–33”E, alt. 245–250 m., floor of evergreen forest by stream, 3 December 2006, J. Murata & al. 040627 (MBK, TI).

Distribution: China (Southern Yunnan Province), Myanmar.

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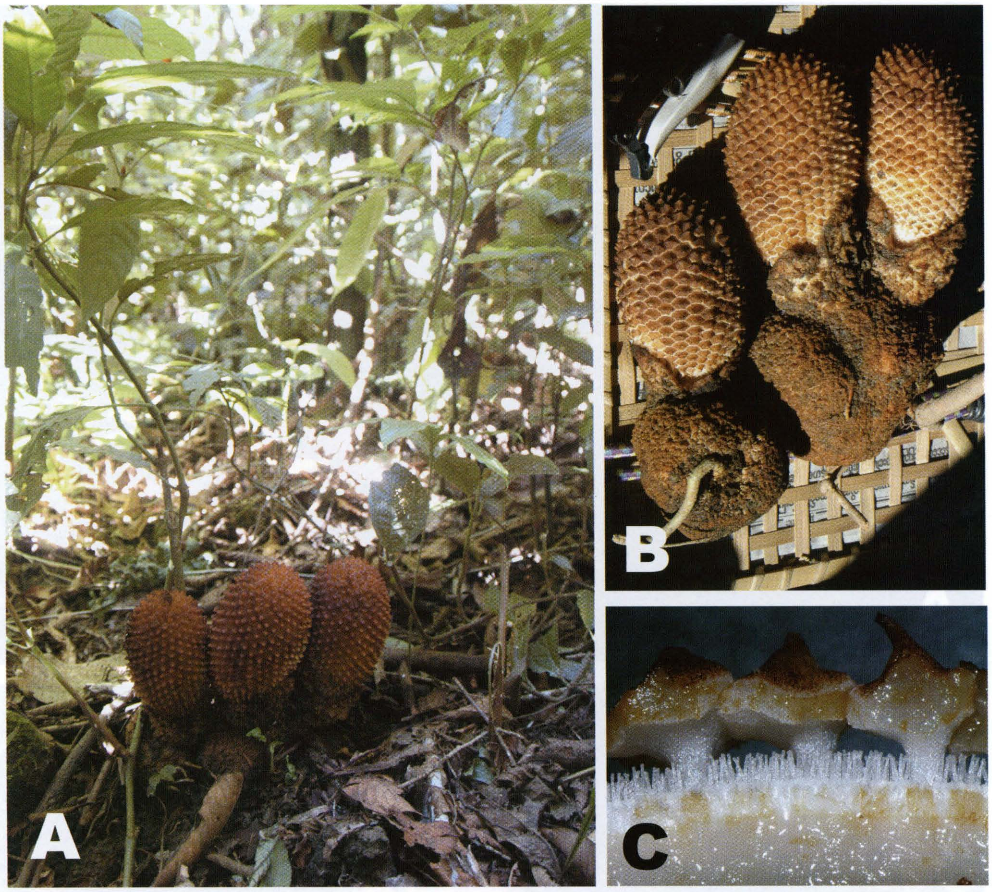

Fig. 6. *Rhopalocnemis phalloides* (female individuals). A, B. Habit. C. Transverse section of the surface of inflorescence, showing minute female flowers covered with caducous scales.

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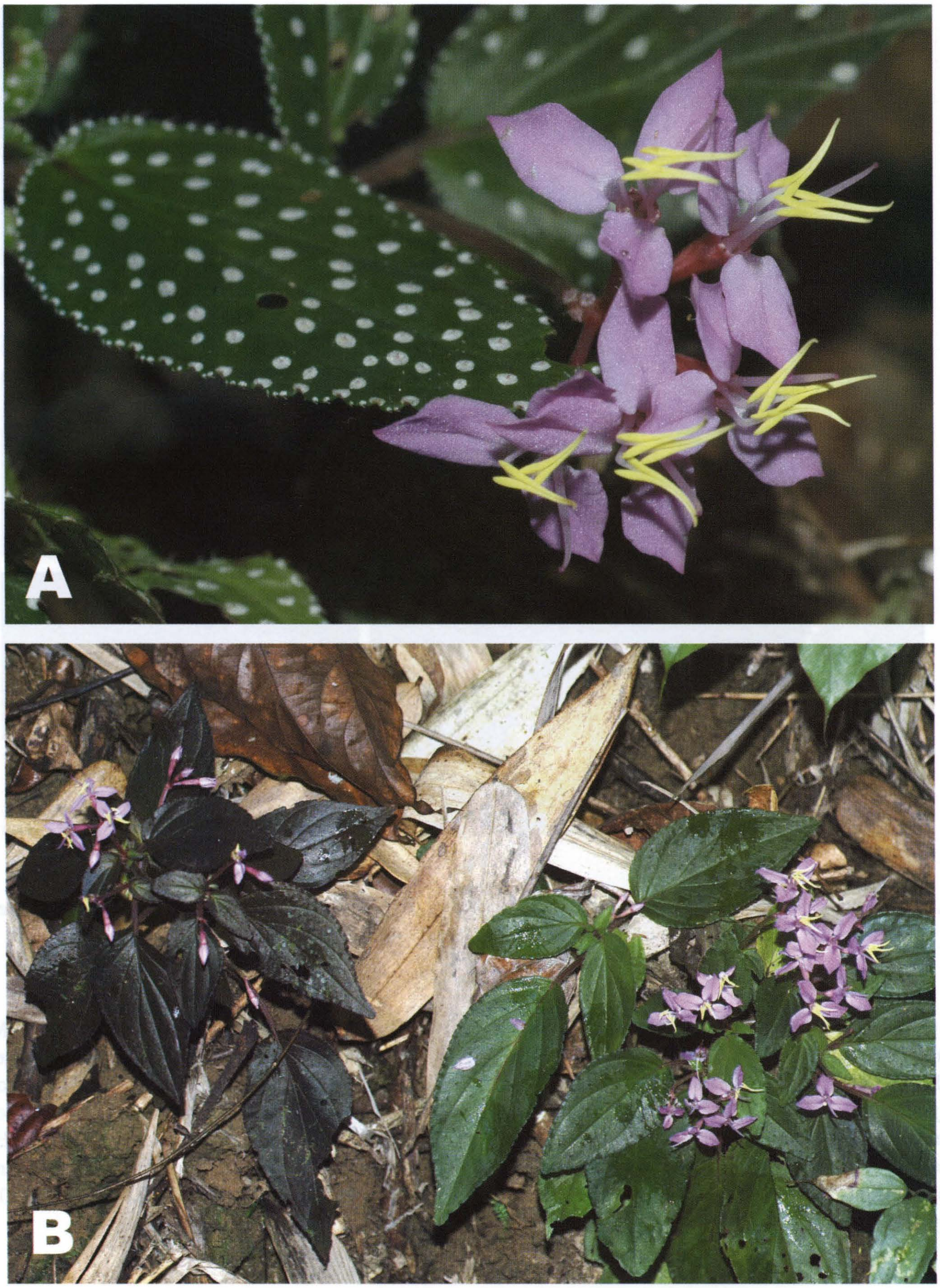

Fig. 7. *Sonerila laeta* showing characteristic colour variation in leaves; green with white spots (A), dark purple leaves without spots (B, left), and green without spots (B, right).

田中伸幸[a]，小林史郎[a]，大井・東馬哲雄[b]，邑田仁[b]：ミャンマー植物についての新知見（1）***Hydrobryum japonicum*, *Balanophora subcupularis*, *Rhopalocnemis phalloides* と *Sonerila laeta***

日華区系の西端としての南ヒマラヤの植物多様性を解析する一連の研究で2005年の雨季終盤から乾季初旬にかけてミャンマー北部のフーコン河谷野生トラ保護区の植物相調査を行った結果，カワゴケソウ科の *Hydrobryum japonicum*，ツチトリモチ科の *Balanophora subcupularis* および *Rhopalocnemis phalloides*，ノボタン科の *Sonerila laeta* が生育することが分かった．それらについての知見を以下にまとめる．これら4種はいずれもミャンマー新産であるが，ミャンマーより東の地域に主な分布域を持っており，ミャンマーと日華区系，インドシナ区系との関係を解析する上で重要な資料と考えられる．こうした植物相の関連については今後の継続的な調査で情報が蓄積されるにつれて次第に明らかになっていくものと思われる．

Hydrobryum japonicum カワゴロモは日本産の新種として発表されたが，最近の研究でタイとその周辺地域に主に分布することが明らかになっている．ミャンマーの産地は本種の分布西限である．

Balanophora subcupularis は1982年に *B. abbreviata* と比較して新種記載されたが，実際には *B. fungosa* ssp. *fungosa* リュウキュウツチトリモチに最も似ており，植物体の大きさ，特に雄花の大きさの違いで識別されるにすぎない．リュウキュウツチトリモチが太平洋地域の沿岸や島に分布するのに対し，本種は内陸に分布する点で対照的である．現地では通常地表付近の根に寄生するが，一ヶ所，つる性木本である *Byttneria pilosa*（アオギリ科）の空中に出た根に寄生している場所があり，地上3メートルの高さまで幹が本種に被われていて壮観であった．ミャンマーの産地は本種の分布西限である．

Rhopalocnemis phalloides は従来，Fig. 3に示すように東ネパールから東南アジアにかけて広く分布することが知られていたが，ボルネオ島，マレーシア，ラオス，タイ，ミャンマーと続く分布の空白地帯があった．ミャンマーの産地はこの空白地帯の北部を埋めるものとして注目される．

Sonerila laeta は中国から1906年に記載されたもので，現在までに中国植物誌で雲南省南部にのみ分布が指摘されていた．この調査により本種はミャンマー北部に分布することが明らかとなった．

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